Patent Claims:

1. Work piece coated with a system of film layers at least one of which is composed of (Al_yCr_{1-y}) X, where X = N, C, B, CN, BN, CBN, NO, CO, BO, CNO, BNO or CBNO and $0.2 \leq y < 0.7$, with the composition within said film being either essentially constant or varying over the thickness of the film continually or in steps, said work piece constituting one of the following tools, specifically a milling tool and in particular a hob, (spherical-head) ball nose mill, planar or profiling cutter, a clearing tool, reamer, (indexable tip) insert for turning and milling, a die or an injection mold.

2. Work piece coated with a system of film layers at least one of which is composed of (Al_yCr_{1-y}) X, where X = N, C, B, CN, BN, CBN, NO, CO, BO, CNO, BNO or CBNO and $0.2 \leq y < 0.7$, with the composition within said film being either essentially constant or varying over the thickness of the film continually or in steps, said work piece constituting a machine component.

3. Machine component as in claim 2, characterized in that said component is a sealing washer, a gear, a piston, a part of a valve drive or a needle for an injection nozzle, or that it is toothed.

4. Tool as in claim 1, characterized in that it is a forming tool and in particular an upper die, a bottom swage, a drawing die, an ejector core or a thread former.

5. Tool as in claim 1, characterized in that it is an injection-molding tool for producing a molded plastic part or a data storage medium.

6. Tool as in claim 1, characterized in that it features a CBN or Cermet base unit or that it is a CBN or Cermet (indexable tip) insert.

7. Work piece as in one of the preceding claims, characterized in that the (Al_yCr_{1-y}) X film has a cubic crystal structure.

8. Work piece as in one of the preceding claims, characterized in that the rate of wear of the (Al_yCr_{1-y}) X film is less than or equal to 1.5 $m^3m^{-1}N^{-1}10^{-15}$.

9. Work piece as in one of the preceding claims, characterized in that the Vickers pyramid hardness of the (Al_yCr_{1-y}) X film is 2300 to 3100.

10. Work piece as in one of the preceding claims, characterized in that the layer structure of the (Al_yCr_{1-y}) X film is microcrystalline with an average grain size of 20 to 120 nm.

11. Work piece as in one of the preceding claims, characterized in that a bonding layer is applied between the work piece and the (Al_yCr_{1-y}) X film.

12. Work piece as in claim 11, characterized in that said bonding layer encompasses at least one of the metals of group IV, V or subgroup VI, or aluminum.

13. Work piece as in claim 11 or 12, characterized in that said bonding layer includes at least one nitride, carbide or carbonitride of one or several metals of subgroup IV, V or VI.

14. Work piece as in one of the preceding claims, characterized in that the minimum of one (Al_yCr_{1-y}) X film is additionally coated with a slip layer.

15. Work piece as in claim 14, characterized in that said slip layer encompasses a carbide of at least one metal with dispersed carbon, MeC/C, a diamond-like carbon layer, a Si- or metallic diamond-like carbon layer, a MoS_x, a WS_x or a titanium-containing MoS_x or MoW_x layer.

16. PVD process for depositing at least one (Al_yCr_{1-y}) X film on a work piece, where X = N, C, B, CN, BN, CBN, NO, CO, BO, CNO, BNO, CBNO and $0.2 \leq y < 0.7$, whereby in a vacuum coating system with at least one Al_zCr_{1-z} target, where $0{,}25 \leq z < 0.75$, at least one work piece is installed and said system is operated at a pressure of 0.5 to 8 Pa with the addition of a nitrogen-, carbon- boron- or oxygen-containing reactive gas and the application on the work piece of a substrate voltage of between -3 and -150V, as an arc or sputtering source in such fashion that the constituent composition within the said minimum of one (Al_yCr_{1-y}) X film is either essentially constant or varies either continuously or in steps over the thickness of the film.

17. PVD process as in claim 16, characterized in that X = N and the reactive gas is nitrogen or oxygen.

18. PVD process as in claims 16 and 17, characterized in that the substrate voltage is pulsed.

19. PVD process as in claims 16 to 18, characterized in that the Al_zCr_{1-z} target is a powder-metallurgically produced target.

20. PVD process as in claim 19, characterized by the use of a target produced by cold-pressing starting material in powder form with repeated subsequent reshaping, for instance in a forge, at temperatures under 660°C, densification by fluxing and cold fusion, and transformation into its final state with a theoretical density at about 96 to 100%.

21. Process for machining a material, characterized in that it involves the use of a tool per claim 1.

22. Process as in claim 21, characterized in that the machining is performed without the addition of lubricants or cooling agents.

23. Process as in claims 21 and 22, characterized in that the tool is a hard-metal or HSS hob (cutter) and the cutting speed is 60 to 450 m/min.

24. Process as in claims 21 and 22, characterized in that the tool is an end-milling, (spherical-head) ball-nose-mill or a roughing cutter.